AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1.   (Currently Amended)   A space-time block decoder for a wireless communications system, comprising:

a demodulator that generates a demodulated symbol sequence by derotating a signal constellation of a received symbol sequence, wherein said demodulator derotates said signal constellation by multiplying said received symbol sequence and a conjugate of a channel response of said wireless communications system; and

a dimension demultiplexer that communicates with said demodulator and that generates in-phase and quadrature components of said demodulated symbol sequence.

2.   (Original)   The space-time block decoder of Claim 1 further comprising a one-dimensional dynamic slicer that communicates with said dimension demultiplexer and that generates constellation points in said signal constellation based on said in-phase and quadrature components.

3.   (Original)   The space-time block decoder of Claim 1 further comprising a receiver that communicates with said space-time block decoder wherein said space-

time block decoder individually decodes symbols in said received symbol sequence as said receiver receives said received symbol sequence.

4.   (Cancelled)

5.   (Currently Amended)   The space-time block decoder of Claim [[4]] 1 wherein said one-dimensional dynamic slicer generates said constellation points by comparing said in-phase and quadrature components to integer multiples of a magnitude square of said channel response.

6.   (Original)   The space-time block decoder of Claim 1 further comprising a receiver that communicates with said space-time block decoder and that includes one receive antenna.

7.   (Original)   The space-time block decoder of Claim 6 wherein said receive antenna receives two symbols during first and second consecutive symbol periods.

8.   (Original)   The space-time block decoder of Claim 1 further comprising a receiver that communicates with said space-time block decoder and that includes at least two receive antennae.

9.   (Original)   The space-time block decoder of Claim 1 wherein at least one symbol in said received symbol sequence is encoded with an orthogonal space-time code.

10.   (Original)   The space-time block decoder of Claim 1 wherein said signal constellation is generated by one of a bi-phase shift keying (BPSK) code, a quadrature phase shift keying (QPSK) code, a 16-quadrature amplitude modulation (QAM) code, a 64-QAM code, and a 256-QAM code.

11.   (Original)   The space-time block decoder of Claim 1 wherein said space-time block decoder is implemented in a wireless metropolitan area network (WMAN).

12.   (Original)   The space-time block decoder of Claim 1 wherein said space-time block decoder is implemented in a wireless local area network (WLAN).

13.   (Original)   The space-time block decoder of Claim 1 wherein said space-time block decoder scales said in-phase and quadrature components to implement a normalized power scale that is based on said signal constellation.

14.   (Original)   The space-time block decoder of Claim 1 wherein said constellation points are Gray coded.

15. (Original)   The space-time block decoder of Claim 2 further comprising:

a bit mapping module that communicates with said one-dimensional dynamic slicer and that maps said constellation points to user data bits.

16. (Currently Amended)   A wireless communications system, comprising:

a receiving antenna that receives a symbol sequence; and

a space-time block decoder that communicates with said receiving antenna, that generates user data based on said received symbol sequence, and that includes:

a one-dimensional dynamic slicer that generates constellation points in a signal constellation of said received symbol sequence based on in-phase and quadrature components of a demodulated symbol sequence, wherein said demodulated symbol sequence is based on said received symbol sequence, and wherein said demodulator derotates said signal constellation by multiplying said received symbol sequence and a conjugate of a channel response of said wireless communications system.

17. (Original)   The wireless communications system of Claim 16 wherein said space-time block decoder individually decodes symbols in said received symbol sequence as said symbol sequence is received.

18.   (Original)   The wireless communications system of Claim 16 wherein said space-time block decoder further includes a demodulator that communicates with said at least one receiving antenna and that generates said demodulated symbol sequence by derotating said signal constellation.

19.   (Original)   The wireless communications system of Claim 18 wherein said space-time block decoder further includes a dimension demultiplexer that communicates with said demodulator and said one-dimensional dynamic slicer and that generates said in-phase and quadrature components.

20.   (Cancelled)

21.   (Currently Amended)   The wireless communications system of Claim [[20]] 19 wherein said one-dimensional dynamic slicer generates said constellation points by comparing said in-phase and quadrature components to integer multiples of a magnitude square of said channel response.

22.   (Original)   The wireless communications system of Claim 16 wherein said receiver includes one receive antenna.

23.   (Original)   The wireless communications system of Claim 22 wherein said receive antenna receives two symbols during first and second consecutive symbol periods.

24. (Original)   The wireless communications system of Claim 16 wherein at least one symbol in said received symbol sequence is encoded with an orthogonal space-time code.

25. (Original)   The wireless communications system of Claim 16 wherein said signal constellation is generated by one of a bi-phase shift keying (BPSK) code, a quadrature phase shift keying (QPSK) code, a 16-quadrature amplitude modulation (QAM) code, a 64-QAM code, and a 256-QAM code.

26. (Original)   The wireless communications system of Claim 16 wherein said receiver is implemented in a wireless metropolitan area network (WMAN).

27. (Original)   The wireless communications system of Claim 16 wherein said receiver is implemented in a wireless local area network (WLAN).

28. (Original)   The wireless communications system of Claim 16 wherein said space-time block decoder scales said in-phase and quadrature components to implement a normalized power scale that is based on said signal constellation.

29. (Original)   The wireless communications system of Claim 16 wherein said constellation points are Gray coded.

30.　(Original)　The wireless communications system of Claim 16 wherein said space-time block decoder includes a bit mapping module that communicates with said one-dimensional dynamic slicer and that maps said constellation points to said user data.

31.　(Currently Amended)　A space-time block decoder for a wireless communications system, comprising:

demodulating means for generating a demodulated symbol sequence by derotating a signal constellation of a received symbol sequence, wherein said demodulating means derotates said signal constellation by multiplying said received symbol sequence and a conjugate of a channel response of said wireless communications system; and

dimension demultiplexing means that communicates with said demodulating means for generating in-phase and quadrature components of said demodulated symbol sequence.

32.　(Original)　The space-time block decoder of Claim 31 further comprising one-dimensional dynamic slicing means that communicates with said dimension demultiplexing means for generating constellation points in said signal constellation based on said in-phase and quadrature components.

33.　(Original)　The space-time block decoder of Claim 31 further comprising receiving means for communicating with said space-time block decoder,

wherein said space-time block decoder individually decodes symbols in said received symbol sequence as said receiving means receives said received symbol sequence.

34.   (Cancelled)

35.   (Currently Amended)   The space-time block decoder of Claim [[34]] 31 wherein said one-dimensional dynamic slicing means generates said constellation points by comparing said in-phase and quadrature components to integer multiples of a magnitude square of said channel response.

36.   (Original)   The space-time block decoder of Claim 31 wherein at least one symbol in said received symbol sequence is encoded with an orthogonal space-time code.

37.   (Original)   The space-time block decoder of Claim 31 wherein said signal constellation is generated by one of a bi-phase shift keying (BPSK) code, a quadrature phase shift keying (QPSK) code, a 16-quadrature amplitude modulation (QAM) code, a 64-QAM code, and a 256-QAM code.

38.   (Original)   The space-time block decoder of Claim 31 wherein said space-time block decoder is implemented in a wireless metropolitan area network (WMAN).

39.   (Original)   The space-time block decoder of Claim 31 wherein said space-time block decoder is implemented in a wireless local area network (WLAN).

40.   (Original)   The space-time block decoder of Claim 31 wherein said space-time block decoder scales said in-phase and quadrature components to implement a normalized power scale that is based on said signal constellation.

41.   (Original)   The space-time block decoder of Claim 31 wherein said constellation points are Gray coded.

42.   (Original)   The space-time block decoder of Claim 32 further comprising:

    bit mapping means that communicates with said one-dimensional dynamic slicing means for mapping said constellation points to user data.

43.   (Currently Amended)   A   wireless   communications   system, comprising:

    receiving means for receiving a symbol sequence; and

    space-time block decoding means that communicates with said receiving means for generating user data based on said received symbol sequence, and that includes:

        one-dimensional dynamic slicing means for generating constellation points in a signal constellation of said received symbol sequence based on in-phase

and quadrature components of a demodulated symbol sequence, wherein said demodulated symbol sequence is based on said received symbol sequence, wherein said space-time block decoding means includes demodulating means that communicates with said receiving means for generating said demodulated symbol sequence by derotating said signal constellation, and wherein said demodulating means derotates said signal constellation by multiplying said received symbol sequence and a conjugate of a channel response of said wireless communications system.

44.   (Original)   The wireless communications system of Claim 43 wherein said space-time block decoding means individually decodes symbols in said received symbol sequence as said receiving means receives said symbol sequence.

45.   (Cancelled)

46.   (Currently Amended)   The wireless communications system of Claim [[45]] 44 wherein said space-time block decoder includes dimension demultiplexing means that communicates with said demodulating means and said one-dimensional dynamic slicing means for generating said in-phase and quadrature components.

47.   (Cancelled)

48.   (Currently Amended)   The wireless communications system of Claim [[47]] 43 wherein said one-dimensional dynamic slicing means generates said

constellation points by comparing said in-phase and quadrature components to integer multiples of a magnitude square of said channel response.

49.   (Original)   The wireless communications system of Claim 43 wherein at least one symbol in said received symbol sequence is encoded with an orthogonal space-time code.

50.   (Original)   The wireless communications system of Claim 43 wherein said signal constellation is generated by one of a bi-phase shift keying (BPSK) code, a quadrature phase shift keying (QPSK) code, a 16-quadrature amplitude modulation (QAM) code, a 64-QAM code, and a 256-QAM code.

51.   (Original)   The wireless communications system of Claim 43 wherein said wireless communications system implements a wireless metropolitan area network (WMAN).

52.   (Original)   The wireless communications system of Claim 43 wherein said wireless communications system implements a wireless local area network (WLAN).

53.   (Original)   The wireless communications system of Claim 43 wherein said space-time block decoding means scales said in-phase and quadrature

components to implement a normalized power scale that is based on said signal constellation.

54.   (Original)   The wireless communications system of Claim 43 wherein said constellation points are Gray coded.

55.   (Original)   The wireless communications system of Claim 43 wherein said space-time block decoding means includes bit mapping means that communicates with said one-dimensional dynamic slicing means for mapping said constellation points to said user data bits.

56.   (Currently Amended)   A method of operating a space-time block decoder for a wireless communications system, comprising:

generating a demodulated symbol sequence by derotating a signal constellation of a received symbol sequence by multiplying said received symbol sequence and a conjugate of a channel response of said wireless communications system; and

generating in-phase and quadrature components of said demodulated symbol sequence.

57.   (Original)   The method of Claim 56 further comprising generating constellation points in said signal constellation based on said in-phase and quadrature components.

58. (Original) The method of Claim 56 further comprising individually decoding symbols in said received symbol sequence said symbol sequence is received.

59. (Cancelled)

60. (Currently Amended) The method of Claim [[59]] 56 further comprising generating said constellation points by comparing said in-phase and quadrature components to integer multiples of a magnitude square of said channel response.

61. (Original) The method of Claim 56 wherein at least one symbol in said received symbol sequence is encoded with an orthogonal space-time code.

62. (Original) The method of Claim 56 wherein said signal constellation is generated by one of a bi-phase shift keying (BPSK) code, a quadrature phase shift keying (QPSK) code, a 16-quadrature amplitude modulation (QAM) code, a 64-QAM code, and a 256-QAM code.

63. (Original) The method of Claim 56 wherein said space-time block decoder is implemented in a wireless metropolitan area network (WMAN).

64. (Original) The method of Claim 56 wherein said space-time block decoder is implemented in a wireless local area network (WLAN).

65. (Original) The method of Claim 56 further comprising scaling said in-phase and quadrature components to implement a normalized power scale that is based on said signal constellation.

66. (Original) The method of Claim 56 wherein said constellation points are Gray coded.

67. (Original) The method of Claim 57 further comprising mapping said constellation points to user data.

68. (Currently Amended) A method of operating a wireless communications system, comprising:

receiving a symbol sequence; [[and]]

generating user data based on said received symbol sequence by generating constellation points in a signal constellation of said received symbol sequence based on in-phase and quadrature components of a demodulated symbol sequence,

wherein said demodulated symbol sequence is based on said received symbol sequence; and

generating said demodulated symbol sequence by derotating said signal constellation by multiplying said received symbol sequence and a conjugate of a channel response of said wireless communications system.

69.   (Original)   The method of Claim 68 further comprising individually decoding symbols in said symbol sequence as said symbol sequence is received.

70-71. (Cancelled)

72.   (Currently Amended)   The method of Claim [[71]] 68 further comprising comparing said in-phase and quadrature components to integer multiples of a magnitude square of said channel response.

73.   (Original)   The method of Claim 68 wherein said signal constellation is generated by one of a bi-phase shift keying (BPSK) code, a quadrature phase shift keying (QPSK) code, a 16-quadrature amplitude modulation (QAM) code, a 64-QAM code, and a 256-QAM code.

74.   (Original)   The method of Claim 68 wherein said wireless communications system implements a wireless metropolitan area network (WMAN).

75.   (Original)   The method of Claim 68 wherein said wireless communications system implements a wireless local area network (WLAN).

76.   (Original)   The method of Claim 68 further comprising scaling said in-phase and quadrature components to implement a normalized power scale that is based on said signal constellation.

77.   (Original)   The method of Claim 68 wherein said constellation points are Gray coded.

78.   (Original)   The method of Claim 68 further comprising mapping said constellation points to said user data.